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EXPANDED SERVICE TEST. SYSTEM TEST
OPERATIONS PROCEDURES

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Army Test and Evaluation Command
Aberdeen Proving Ground, Maryland

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Prescribes a method for evaluation of field protective mask operational and functional characteristics. Identifies supporting tests, facilities, and equipment required. Provides procedures for personnel training, functional suitability, adverse conditions, airdrop operations, troop acceptability, human factors, and value analysis. Applicable to masks with and without resuscitation device and drinking device.			

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EXPANDED SERVICE TEST - SYSTEM TEST OPERATIONS PROCEDURES

AMSTE-RP-702-107

*Test Operations Procedure 8-3-110

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MASK, FIELD PROTECTIVE

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SECTION I
GENERAL

1. Purpose and Scope.

a. This Test Operations Procedure (TOP) establishes the procedures for conducting an Expanded Service Test (EST) of field protective masks (with and without resuscitation device and drinking device). The project officer will use the TOP as a guide in the preparation of the EST plan, conduct of the EST, and for analysis and report of test results.

b. These procedures will generate adequate data to enable the test agency to determine the degree to which a field protective mask, its accessories, and maintenance test package meet the characteristics specified in the appropriate materiel requirements document. Specific procedures used will depend on the characteristics of the test item and the criteria stated in requirements documents.

*This TOP supersedes MTP 8-3-110, 5 December 1969, and 11 May 72, AD-750614.

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c. The environmental conditions for conducting the EST using these procedures are those associated with climatic categories 5 and 6 specified in AR 70-38 (Appendix A).

d. This procedure addresses a preoperational inspection to determine the physical characteristics and serviceability of the test item, a series of appropriate tests designed to examine the operational and functional performance characteristics, and an examination of the safety, human factors and value engineering aspects of the test item.

2. Background.

a. A requirement exists for a protective mask to protect the face, eyes, and respiratory tract of the individual soldier against the effects of chemical and biological (CB) agents.

b. The mask must provide a toxic-free flow of air to the wearer without causing discomfort or impairment of work performance. In addition to its reliability, the mask must be durable, lightweight, compact, comfortable to wear over long periods, and must allow for adequate vision and means of communication.

c. Those masks equipped with a resuscitation device, which attaches to the outlet valve assembly, are capable of permitting artificial resuscitation. This permits a donor to transmit toxic-free air to casualties in a toxic environment without the donor being exposed. Likewise a drinking device permits the consumption of water from the canteen in a toxic environment.

3. Equipment and Facilities. In addition to the equipment and facilities defined in the documents listed in Section II, the following are required:

a. Equipment.

- (1) Test items and accessories.
- (2) Control items and accessories (if prescribed).
- (3) Maintenance test package.
- (4) Safety release.
- (5) Appropriate equipment publications.

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- (6) Rifle platoon with TOE weapons and equipment.
- (7) Photographic equipment (still and motion).
- (8) Safety and first aid equipment.
- (9) Tactical vehicles.
- (10) Aircraft.
- (11) Parachutes and related equipment.
- (12) Stopwatches.
- (13) Devices to measure and record wind speed and direction.
- (14) Individual clothing and equipment.
- (15) CS grenades.
- (16) Communications equipment.
- (17) Scales (weight).
- (18) Tape measures.
- (19) Decontamination supplies.
- (20) Water heating equipment.
- (21) Appropriate tools and equipment.
- (22) Small arms ammunition.
- (23) Appropriate crew-served weapons.
- (24) Appropriate night vision devices.
- (25) Appropriate crew-served weapons ammunition.
- (26) Data reduction and processing equipment.
- (27) CS capsules and improvised CS generator.
- (28) Riot control agent dispersers.
- (29) Thermometer.

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b. Facilities.

- (1) Field and range areas.
- (2) Instrumented weapons test facilities (if available).
- (3) CS gas chamber.
- (4) Maintenance facilities through general support.
- (5) Communications facilities.
- (6) Training areas:
 - (a) Obstacle course.
 - (b) Various cross-country terrain.
- (7) Classroom, storage area, and office space.

SECTION II
TEST PROCEDURES

4. Supporting Tests.

a. The procedures outlined in this document provide general guidance to the test officer for an expanded service test. Detailed specific procedures will depend upon the characteristics of the item being tested and the stated requirements in the applicable requirements documents.

b. During all test phases, sufficient data must be collected to support valid conclusions. This goal may be constrained by limited numbers of test items, limited time, limited manpower, or a limited amount of support and control equipment. During preparation of the plan, the test officer should consult with statisticians, human factors personnel, and experienced test engineers or test officers for assistance in developing the experimental pattern. The proper pattern for the experiment will aid in control of bias, simplify the requisite calculations of the analysis, and permit clear estimation of the effects of the factors. The suggested consultants can advise and assist the test officer in determining appropriate techniques for random sampling, sample size required to estimate the true performance, estimating average performance (or variability of performance) from a sample, comparing materials or products with respect to average performance (or variability of performance), number of test soldiers needed, and

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the number of replications required for a specific operation. Statistical guidance is found in TOP 3-1-002, Confidence Intervals and Sample Size, and in National Bureau of Standards Handbook 91, Experimental Statistics.

c. All applicable TOP's, the tests defined in Section III, and other published documents to be considered in formulating an expanded service test plan are listed below. Additional reference materiel is in the Appendix.

<u>TEST SUBJECT TITLE</u>	<u>PUBLICATION NO.</u>
(1) Preoperational Inspection and Physical Characteristics	8-3-500
(2) Safety	8-3-506
(3) Photographic Coverage	7-3-519
(4) Personnel Training (refer to para 5)	10-3-501
(5) Functional Suitability (refer to para 6)	
(6) Adverse Conditions (refer to para 7)	
(7) Man Portability/Transportability	10-3-506
(8) Airdrop Operations (refer to para 8)	7-3-511
(9) Durability and Reliability	8-3-503
(10) Maintenance Evaluation	8-3-507 and TECR 750-15
(11) Troop Acceptability and Human Factors (refer to para 9)	8-3-509
(12) Value Analysis (refer to para 10)	USAMC SUPPL 1 to AR 11-26

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SECTION III
SUPPLEMENTARY INSTRUCTIONS

5. Personnel Training.

a. Objectives.

(1) To determine the training required for proficient use of the test item and to familiarize test soldiers with the test item.

(2) To determine the ease of donning and doffing the test item.

b. Method. Accomplish the procedures described in TOP 10-3-501. In addition, accomplish the following procedures:

(1) Familiarization training. Test soldiers will be trained according to the instructions prescribed by the applicable publication accompanying the test item. Instruction will be conducted and results evaluated by test supervisory personnel who have received new equipment training on the test item. Included in this training will be the mask confidence exercise prescribed by FM 21-48, Chemical, Biological, and Radiological (CBR), and Nuclear Defense Training Exercises, to determine the adequacy of the test soldiers' training with protective masks. Throughout the remainder of the EST, test supervisory personnel will evaluate the effectiveness of the prescribed instruction.

(2) Ease of donning and doffing. Test soldiers will be divided into two groups, and the following will be performed:

(a) One group will don and doff the test item in accordance with the procedures specified in FM 21-41, Soldiers Handbook for Defense Against Chemical and Biological Operations and Nuclear Warfare. The second group will use stopwatches to time these exercises.

(b) The exercises will be repeated a sufficient number of times to develop a proficiency whereby approximately nine seconds are required for correct masking and the hood is adjusted and secured in six seconds. CBR defense standards of proficiency are prescribed in FM 21-40, Chemical, Biological, Radiological, and Nuclear Defense.

(c) When the first group achieves the specified proficiency, groups will switch duties, and the procedures will be repeated.

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(d) If a control item is used for comparison, the procedures in (a) through (c) above will also be applied to the control item.

(e) Throughout the remainder of the EST, observations will be made concerning the ease of donning and doffing.

c. Data Required.

(1) Familiarization Training.

(a) Time required and type instruction used for familiarization of test soldiers with test items.

(b) Observations related to adequacy of instruction, as noted throughout the EST.

(2) Ease of Donning and Doffing.

(a) Descriptions of masking exercise.

(b) Repetitions required to attain 9 seconds masking proficiency, and 6 additional seconds if a hood is attached and used.

(c) Difficulties encountered in donning and doffing.

(d) Comparison (test and control items) for all activities.

d. Analytical Plan.

(1) Familiarization Training. Subjectively evaluate these data to determine whether the appropriate criteria are met.

(2) Ease of Donning and Doffing.

(a) Based on comments of test soldiers and observations of test supervisory personnel, a subjective comparison will be made between test and control items.

(b) The mean number of repetitions for test and control items will be calculated and subjected to a t-test to determine whether significant differences exist between them.

(c) Based on comments and observations, a subjective evaluation will be made to determine whether the appropriate criteria are met.

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6. Functional Suitability.

a. Objectives.

- (1) To determine the vision capability of the test item, both with and without optical (spectacle) inserts.
- (2) To determine the efficiency of voice transmission.
- (3) To determine the ease of attaching and using the resuscitation and drinking devices.
- (4) To determine the effectiveness of the test item in providing protection against CB agents.

b. Method. Test soldiers equipped with fighting and existence loads and wearing CB protective equipment as appropriate, should employ the test item in tactical exercises conducted under simulated combat conditions. An example of a controlled field exercise is at Appendix B. The tactical exercises should be designed to ensure all test items operational characteristics described in requirements documents are fully demonstrated. The simulated tactical situations should resemble as closely as possible those which individuals can reasonably expect to encounter in the performance of their combat missions. Field Manual 21-48, Chemical, Biological and Radiological (CBR) and Nuclear Defense Training Exercises, should be used as a guide in planning and conducting the test exercises. The test site should be selected to provide a realistic tactical environment and sufficient area to ensure the effects of any training agents used in testing do not interfere with unrelated activities outside the test area. Photography will be used to supplement data obtained. Specific exercises designed to produce data concerning the functional characteristics of the test item will be conducted as follows:

(1) Determination of Vision Capability (with and without optical inserts). Throughout all exercises in which protective masks are worn, the following observations will be made for both test and control items:

- (a) Correct relationship between eyes and eyelenses.
- (b) Evidence of image distortion and fogging of lenses.
- (c) Ability of test soldiers to observe targets, aim and fire individual and crew-served weapons, and use night vision devices.

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(2) Determination of Efficiency of Voice Transmission. Test soldiers will be divided into two groups and will perform the following:

(a) Each group will don test masks and will be stationed a selected distance apart (facing each other).

(b) Each member of one group will give a series of commands to his opposite number who will repeat the commands.

(c) Groups will move successive distances apart until commands are not understandable. For each pair of test soldiers the maximum distance at which commands could be heard and understood will be measured. The average distance for all test soldiers will be determined.

(d) Test soldiers will report any difficulties experienced in transmitting, hearing, and understanding.

(e) Test unit radio-telephone operators will wear test masks while operating their radio equipment in two-way conversation. Difficulties in operating the equipment or transmitting will be reported.

(f) The procedures above will also apply to the control item.

(3) Ease of Attaching and Using Resuscitation and Drinking Devices. The following will be performed during the tactical exercises:

(a) Test soldiers will be equipped with all accessories of test and control items. These items will be stowed as prescribed by applicable instructions.

(b) On command, test soldiers will don masks and remove resuscitation devices from stowed positions and couple them to the mask in accordance with instructions provided. This procedure will be repeated using the drinking device and canteen.

(c) Times required for these procedures will be recorded.

(d) Throughout the conduct of the tactical field exercises, difficulties encountered using the resuscitation and drinking devices will be noted.

(e) The procedures above will be applied to both the test and control items.

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(4) Protection Provided Against CB Agents. Prior to the conduct of the tactical field exercises, mask confidence exercises will be conducted in accordance with the procedures prescribed in FM 21-48. A CS chamber should be used for this exercise. If none is available, the exercise may be conducted in an old tent, or a field mask confidence exercise area may be substituted for the CS chamber.

(a) Test soldiers will report any evidence of leaks or fitting problems, and information pertinent to wearing comfort and confidence in the mask's protective ability.

(b) During the conduct of the tactical field exercises, test soldiers will be exposed to CS attacks to verify the information reported in (a) above.

(c) The procedures above will be applied to both the test and control items.

c. Data Required. Test supervisory personnel will compile all photographs taken and the following data:

(1) Determination of Vision Capability.

(a) Observations relating to the relationship between eyes and eyelenses.

(b) Evidence of image distortion and fogging of lenses.

(c) Comments pertaining to observation of targets, aiming and firing of the individual and crew-served weapons, and use of night vision devices.

(d) Comparison (test and control items) for all activities.

(2) Determination of Efficiency of Voice Transmission.

(a) Number of test soldiers in each group and starting distance between the two groups.

(b) Description of commands given (normal voice, command voice, shouts).

(c) Distance increments in each successive movement between groups.

(d) Maximum distance at which commands could be heard and understood by each group.

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(e) Record of difficulties encountered in transmitting, hearing, and understanding voice communications.

(f) Record of difficulties encountered in operating radio equipment and transmitting with radio equipment.

(g) Comparison (test and control items) for all activities.

(3) Ease of Attaching and Using Resuscitation and Drinking Devices.

(a) Description of accessories and manner in which stowed.

(b) Time required to don mask and properly couple resuscitation device to mask.

(c) Time required to don mask and properly couple drinking device to mask.

(d) Description of procedures used in coupling resuscitation and drinking devices to masks and any difficulties encountered.

(e) Comparison (test and control items) for all activities.

(4) Protection Provided Against CB Agents.

(a) Description of the mask confidence exercise conducted.

(b) Comments and observations pertaining to leaks, fitting, and wearing comfort of the masks.

(c) Test soldiers' comments pertaining to their confidence in the mask.

(d) The number of each size of mask tested.

(e) Description and observations of CS attacks conducted during the tactical field exercises.

(f) Comparison (test and control items) for all activities.

(5) Any additional observations and comments pertinent to the functional suitability of the test item will be recorded. When control items are used in comparison testing, difference between the performance of test and control items will be noted.

(6) Photographs will be used when applicable to supplement other data.

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d. Analytical Plan.

(1) Determination of Vision Capability. Accumulated data will be subjectively evaluated to determine whether the test item significantly interferes with the vision of test soldiers and whether the appropriate criteria are met.

(2) Determination of Efficiency of Voice Transmission.

(a) The mean of the maximum distances at which voice transmissions could be heard and understood will be determined.

(b) The mean distance determined in (a) above will be compared to the appropriate criteria to determine whether they are met.

(c) Data pertinent to radio communication while wearing test masks will be subjectively evaluated to determine their significance and whether the appropriate criteria are met.

(3) Ease of Attaching and Using Resuscitation and Drinking Devices.

(a) The mean time for donning of mask and proper coupling of each type device will be determined.

(b) Based on comments of test soldiers and observations of test supervisory personnel, a subjective comparison will be made between the test and control items.

(c) Using the mean time in (a) above, and the comparison in (b) above, results will be subjectively compared to the appropriate criteria to determine whether they are met.

(4) Protection Provided Against CB Agents. Accumulated data will be subjectively evaluated to determine whether the appropriate criteria are met.

(5) Comparison data between test and control items will be subjectively evaluated to determine significant differences between them.

7. Adverse Conditions.

a. Objective. To evaluate the performance characteristics of the test item under adverse conditions encountered or simulated during the test.

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b. Method.

(1) This procedure does not prescribe special tests to be made under adverse conditions. Rather, it is intended to emphasize the importance of conducting a substantial portion of the planned service testing during the adverse environmental conditions occurring naturally during the test period. Specific plans will be made to designate state of readiness conditions for test equipment and personnel, to be on call to take advantage of adverse weather conditions that occur during testing. When naturally occurring adverse conditions are insufficient to satisfy requirements, field expedients may be used to simulate some of the desired conditions.

(2) During engineering testing, developmental items are subjected to precisely controlled and instrumented environmental chamber tests under extremes of temperature, humidity, dust, solar radiation, water immersion, rain, rough handling and shock (see TOP 8-2-110, Masks, Protective). However, actual use of an item under natural adverse conditions by troops representative of those who will use it in the field may reveal discrepancies that did not become apparent during controlled laboratory testing.

(3) In the course of the expanded service test, the test and control items will be used and maintained during and/or immediately following exposure to naturally occurring adverse conditions such as dust, sand, rain, wind, darkness, mud, extreme temperature, and heavy foliage. Operational failures, malfunctions, and other occurrences affecting operation of the test item will be noted.

c. Data Required.

(1) Records of environmental conditions encountered during testing.

(2) Difficulties encountered with test items, or damage sustained by test items attributable to the environmental conditions encountered.

(3) Comparison (test and control items) for all conditions.

d. Analytical Plan.

(1) Accumulated data will be subjectively evaluated to determine whether the appropriate criteria are met.

(2) Comparison data between test and control items will be subjectively evaluated to determine significant differences between them.

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8. Airdrop Operations. Evaluations will be conducted as defined by TOP 7-3-511, except the post-jump inspection will consist of a serviceability inspection followed by use of the test item (and control item if furnished) in a CS chamber to check the mask for filtration efficiency.

9. Troop Acceptability and Human Factors. Evaluations as defined by TOP 8-3-509 should be conducted, limiting procedures to those pertaining to individual protective equipment. A questionnaire should be used to collect the comments of the test soldiers pertaining to troop acceptability. Based on these comments a subjective evaluation will be made to determine troop acceptability and whether the appropriate criteria have been met. Additionally, the following will be performed to determine whether the test items interfere with the performance of individual combat actions:

a. Objective. To determine the effects of the test items on the performance of individual combat tasks.

b. Method.

(1) Test soldiers will fire for record, using their individual weapons, on a suitable firing facility (Trainfire). They will fire while wearing no masks, while wearing test items, and while wearing control items (if furnished).

(2) If available, instrumented test facilities such as those of USAIB (described in TOP 3-3-065, Rifle) will be substituted for the firing exercise above. The use of these facilities may be integrated with controlled field exercise shown in Appendix B. The exercises conducted on the instrumented test facilities will involve wear of the test item, control item, and no wear of masks in order to obtain comparative data. Instrumented facilities to be used for collection of these data should include the following:

(a) Defense facility which simulates an attack on a position held and defended by test soldiers.

(b) Attack facility which simulates an objective held by a defending enemy which test soldiers will attack.

(c) Quick-fire facility consisting of a course over which the test soldiers must individually travel, engaging targets enroute.

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(3) Selected crew-served weapons will be fired on appropriate range facilities. Test soldiers will fire while unmasked, while wearing test items, and while wearing control items.

(4) If available, a Clothing and Equipment Test Facility (CETF) described in TOP 1-1-046, Field Combat Test Exercises, will be negotiated by test soldiers while wearing test items, control items, and without masks in order to obtain comparative data.

c. Data Required.

(1) Record (Trainfire) scores of test soldiers when firing individual weapons with test, control, and no items (masks).

(2) Descriptions of exercises conducted on instrumented facilities and the results (to include hit probability, time to first round, time to first hit, and time to shift fire), while wearing test, control, and no masks.

(3) Hit probability (if available) for firing of appropriate crew-served weapons while wearing test, control, and no masks.

(4) For those crew-served weapons requiring a forward observer to adjust fires, the following will be recorded: time to register, number of rounds to register, and record of adjustments (without masks, with test item, and with control item).

(5) Results of exercises conducted on the CETF (including time and accuracy measures). Observational data will be recorded, and subjective reports will be solicited from test soldiers with regard to performance, compatibility, and comfort of the test and control items.

d. Analytical Plan.

(1) The average performance factors (hit probabilities and time to first round, first hit, and shift fire) as applicable for each exercise (trainfire, attack, defense, and quick-fire) in each mode (wearing test, control, and no mask) will be calculated. Mean hit probabilities will be normalized using an appropriate transformation and a t-test or analysis of variance to determine whether significant differences exist while wearing test, control, and no masks. Time measurements will be subjected to a t-test or analysis of variance to determine significant differences. Comments, observations, and results of the above analyses will be subjectively evaluated.

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(2) Analysis of data collected on the CETF will be concerned with ranges and means of performance for individual and group scores for each event. Comparison between test and control items will be made utilizing t-test and analysis of variance techniques. Data will be analyzed on site, and the results of these analyses will be subjectively evaluated.

10. Value Analysis.

a. Objective. To determine whether test items have any unnecessary, costly, or "nice to have" features which might be eliminated without adversely affecting their performance, durability, or safety.

b. Method. Throughout the EST, observations will be made by test supervisory personnel, and test soldiers will be instructed to report any features which could be eliminated or modified without compromising the performance, durability, or safety of the test item.

c. Data Required.

(1) Comments of test soldiers.

(2) Observations of test supervisory personnel.

d. Analytical Plan. Observations and comments will be reviewed, and a subjective evaluation will be made as to whether the appropriate criteria are met.

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APPENDIX A
REFERENCES

1. AR 70-10, Test and Evaluation During Research and Development.
2. AR 70-38, Research, Development, Test and Evaluation of Materiel for Extreme Climatic Conditions.
3. National Bureau of Standards Handbook 91, Experimental Statistics.
4. FM 21-11, First Aid for Soldiers.
5. FM 21-40, Chemical, Biological, Radiological, and Nuclear Defense.
6. FM 21-41, Soldiers' Handbook for Defense Against Chemical and Biological Operations and Nuclear Warfare.
7. FM 21-48, Chemical, Biological, Radiological (CBR), and Nuclear Defense Training Exercises.
8. TM 3-220, Chemical, Biological, and Radiological (CBR) Decontamination.
9. TM 3-4240, Series of Manuals Pertaining to Protective Masks.
10. Applicable Draft Technical Manual.
11. TECR 70-23, Equipment Performance Reports.
12. TECR 70-24, Documenting Test Plans and Reports.
13. TECR 310-6, TECOM Test Operations Procedures.
14. TECR 385-6, Verification of Safety of Materiel During Testing.
15. TECP 310-3, TECOM Test Operations Procedures Style Manual.
16. Appropriate Materiel Need Documents.
17. Test Directive.
18. TOP 1-1-012, Classification of Deficiencies and Shortcomings.
19. TOP 1-1-046, Field Combat Test Exercises.
20. TOP 3-1-002, Confidence Intervals and Sample Size.
21. TOP 3-3-065, Rifle.
22. TOP 8-2-110, Mask, Protective.

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23. Jacobs, T.O., A Guide for Developing Questionnaire Items, HumRR0,
Fort Benning, Georgia, January 1970.

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APPENDIX B
CONTROLLED FIELD EXERCISE
TACTICAL USE OF FIELD PROTECTIVE MASKS

1. Introduction.

a. Purpose. The purpose of this scenario is to provide the project officer with background information and guidance to conduct the field exercise for EST of field protective masks. Additionally, it provides reviewing agencies with information concerning the verification of doctrine, organization and tactics, logistical support, and training requirements associated with the test item.

b. Scope.

(1) The scenario specifies the operations of the test unit and is based on the operational and organizational concepts associated with individual items of CB protective equipment. It is intended to cover a 48-hour period.

(2) During the conduct of this exercise, the test unit will accomplish the following:

(a) Foot march over improved and unimproved roads and cross-country.

(b) Attack, consolidate, and defend an objective area.

(c) Motor march over improved and unimproved roads and cross-country.

(d) Undergo chemical attacks (as required) that will cause test soldiers to take individual CB protective actions.

(e) Wear test and control items over sustained periods (8 hours minimum).

(f) Maintain the test and control items.

2. General and Special Situation.

a. Map references. Omitted.

b. Overprinted map sections including test sites. Omitted.

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c. Friendly Forces. This scenario guides the operations of rifle and mechanized platoon sized units as part of a larger force engaged in operations against aggressor forces. It is recommended that aggressor forces also be equipped with test and control items. The tactical setting begins with friendly forces in defensive positions (or may be modified to include a motor march to those positions). Plans for friendly forces include the attack and defense of specified objective areas.

d. Simulated Enemy. Enemy forces possess an offensive Chemical capability and are expected to employ it whenever it is to their advantage to do so. All enemy forces can be expected to defend or conduct limited attacks throughout the area of operations.

3. Description of the Area of Operations.

a. Terrain and Weather.

(1) Terrain is generally hilly with varying degrees of vegetation including open grassy areas, low brush, and wooded forests. The more thickly forested areas and ravines comprise areas where chemical agents may persist over extended periods.

(2) Weather during the period of the operation is forecasted to be generally clear with temperatures ranging from cool to hot. Rain showers may be encountered at any time during the period.

b. Roadnets and Railroads. There are numerous improved and unimproved roads throughout the area. Railroads do not influence the field exercise.

c. Inland Waterways. Omitted.

4. Concept for Conduct of the Field Exercise.

a. Unit assignment and mission. The unit is assigned to a larger force which has the mission of locating and destroying enemy elements in its area of operations.

b. Concept of employment. The unit is capable of carrying out the assigned missions. Protective masks will be carried and used as required throughout the field exercise.

c. Organization. One protective mask is assigned to each individual soldier.

d. Concept for logistical support. The project officer will insure that logistical support (including maintenance) is performed in the field during EST.

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e. Troop training requirements. EST personnel will be representative of those who will use the item. All EST personnel will receive training on the item prior to the field exercise and during the exercise.

5. Field Exercise Unit Operations. The scenario depicts actions to be taken by the test unit required to perform all supporting tests except preoperational inspection and physical characteristics. While the exercise will not complete all the other tests listed in Section IV, data gathered during the exercise will satisfy portions of the remaining supporting tests. The general description of chronological sequence which follows may be modified to suit the particular situation at the EST site. The numbers that identify supporting tests correspond to the paragraph numbers of the tests listed in Section IV. Specific dates and times are not indicated for each activity. Actual times and time required for each activity will be determined by the test officer.

<u>EVENT NUMBER</u>	<u>EXERCISE ACTIVITY</u>
1	Unit prepares and occupies defensive positions (preparing fortifications, clearing fields of fire, providing camouflage). Receives warning of enemy CB threat.
2	Unit conducts patrols in vicinity of defensive area. Patrols encounter enemy forces which use CS grenades as a means to break contact.
3	Patrols return to defensive area. Report findings.
4	Unit is relieved of defensive mission. Motor march to new defensive area. Sustains CS attacks during march.
5	Unit assumes new defensive area. Sustains large-scale chemical attack launched by enemy in preparation for attack.
6	Unit repels enemy attack. Employs its own chemical capability (CS) in repelling attack. Soldiers remain masked throughout defense.
7	Unit prepares counter-attack. Attack will involve friendly chemical employment and the use of helicopters in the assault.

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EVENT NUMBER

EXERCISE ACTIVITY

- 8 Unit begins attack. As unit reaches assault position, enemy conducts chemical attack to break up and weaken attack. Attacking unit must remain in CB protective posture to include those personnel loading and off-loading aircraft.
- 9 Unit consolidates on objective and regroups after driving enemy from objective.
- 10 Any or all of the foregoing events may be repeated in order to provide sufficient data.

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